Effective Web Sites for Small to Medium Sized Enterprises[1]

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Abstract

In the UK millions are now online and many are prepared to use the Internet to make and influence purchasing decisions. Businesses should, therefore, consider whether the Internet could provide them with a new marketing opportunity. Although increasing numbers of businesses now have a web site, there seems to be a quality problem that is leading to missed opportunities, particularly for smaller enterprises. This belief is backed up by an automated survey of 3802 predominantly small UK business sites, believed to be by far the largest of its kind to date. Analysis of the results reveals widespread problems in relation to search engines. Most Internet users find new sites through search engines, yet over half of sites checked were not registered in the largest one, Yahoo!, and could therefore be missing a sizeable percentage of potential customers. The underlying problem with business sites is the lack of maturity of the medium as evidenced by the focus on technological issues amongst designers and the inevitable lack of web-business experience of managers. Designers need to take seriously the usability of the site, its design and its ability to meet the business goals of the client. These issues are perhaps being taken up less than in the related discipline of software engineering, probably due to the relative ease of web site creation. Managers need to dictate the objectives of their site, but also, in the current climate, cannot rely even on professional web site design companies and must be capable of evaluating the quality of their site themselves. Finally, educators need to ensure that these issues are emphasised to the next generation of designers and managers in order that the full potential of the Internet for business can be realised.

Management and policy implications

- There is a large online population in the UK, probably over ten million have used the web, and many are prepared to use it to at least influence their purchasing decisions. It is, therefore, apparent that businesses of all sizes should consider having a web site.
- The design of a web site needs to be viewed primarily as a business task, not a technical task. The web site design needs to be appropriate to the needs of the company and should focus on supporting business goals.
- Business managers need to exercise quality control over a web site designed for them by their IT technician or an external web design company because the evidence shows that a majority of sites are substandard.
- Managers, to fulfil their quality control role, need to understand that simply having a home page on the web does not mean that anybody will visit the site, this depends upon appropriate site design and registration in search engines.

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- Small businesses should consider placing immediate responsibility for the site with the person that is also responsible for marketing, rather than an IT expert.
- Simple mainly non-technical tests need to be carried out on any web site designed, including checking how easy it will be for potential customers to find it by typing relevant key words into major search engines.
- If using an external agency to design a web site, other sites designed by the agency should be evaluated, using the same tests, before it is hired.
- The large number of sites not registered with search engines is causing the potential of the web to be unrealised. Businesses with an existing web site may need to redesign it and reassess the potential of the web once the results of this can be seen.

Keywords: Internet, World Wide Web, Small and Medium Sized Enterprises, Web site design.

Introduction

In mid-1999 the UK was the fourth biggest Internet user, having perhaps ten and a half million of its inhabitants online by the end of the previous year (see table 1). This represents a large potential market, with 30% already having made a purchase online and with more using the Internet to aid purchase decisions despite not buying online (CyberAtlas, 1999). In this context, web sites represent an important marketing opportunity for business. Many Small to Medium Sized Enterprises (SMEs) in the UK do now possess a web site, often one constructed for them by an outside agency or by an enthusiastic employee. Exact figures are difficult to calculate, but a survey of UK sites found that 90% (159 out of 177) had less than 250 employees (Thelwall, 2000) and the survey described here found 3802 business sites from a limited subset of the web. However, the web presence of businesses can be extremely ineffective, leading to a lost opportunity and wasted money (Callaghan and Pie, 1998; Lee, 1998). In a recent survey, a majority of businesses believed that their web site had not increased their turnover (56%, with a further 13% unsure from 98 surveyed) (Hooi-Im *et al*., 1998). The situation is likely to be much worse for SMEs than this picture reflects not only because of the inclusion of large businesses and Internet based businesses, but also because the survey method only included web sites that had been registered with Yahoo!Directory, a process that filters out some of the least 'visible' sites, a concept discussed later. Web site under-performance is an extension of the recognised problems of enterprises coping with IT (Earl, 1996; Peppard and Ward 1996) that has led to the growth of outsourcing in recent times. Peppard and Ward (1999) summarise the situation for larger businesses: '*achieving high performance from IT is not just about the IT function's ability to build, maintain and deliver systems, but is an organisational wide activity requiring a strong business/IT partnership*'.

Table 1. Selected online populations. Data obtained from various sources (Nua Internet, 1999)

Country	Estimated numbers online (Millions)	Estimated Percentage online	Date of survey
US	106.3	39	July 1999
Japan	18	14	December 1998
Canada	12.7	42	June 1999
UK	10.6	18	December 1998
Germany	8.4	10	March 1999
Australia	5.5	31	May 1999
Sweden	3.6	41	May 1999
Norway	1.6	36	May 1999
Iceland	0.121	45	December 1998

Similar problems seem to be met by smaller businesses (Fink, 1998; Mitev and Marsh, 1998), with Balantine, Levy and Powell (1998) proposing that the lack of a business and IS/IT strategy could be a widespread problem. Smaller businesses tend to make less use of the Internet than larger ones (Sillince, 1998) and in the area of business web site design, there are particular problems that exacerbate this already problematic IT situation (Briones, 1999). Three of these problems are that web sites are relatively easy and cheap to construct for a computer literate person and as a result may not be created as carefully as other media; designers seem to often focus on the technology rather than organisational needs; and many managers do not have the experience to judge the potential and value of the Internet. These issues are all of more concern to an SME that is not large to afford to spare the time of an employee and/or a manager to become knowledgeable in Internet technologies and be able to design a good quality web site or provide effective quality control over one externally created respectively. It is believed that many companies must be in the situation that they have paid for a web site but it is never visited or does not seem to attract any customers and draw the conclusion that the Internet is not useful for them. In fact creating an *effective* web site needs to be taken seriously in the face of all the competition already on the Internet (Lu and Yeung, 1998). It is first and foremost a *marketing* task (Angelides, 1997; Dholakia and Rego, 1998; Saaksjarvi, 1999) and should not be left to computing professionals. The issues surrounding effective Internet use for traditional SMEs that are not already Internet orientated, will be examined by focussing on taking full advantage of the potential of the web, drawing upon a survey of UK business web sites.

Types of web presence (site content)

Most UK businesses have by default some web presence, if only from directory type facilities such as the Yahoo! business search (www.yahoo.co.uk) which indexes basic contact information for over 2 million enterprises. Of course, a much more visible presence is a company web site, which need not cost more than £1,000 per year (1999 prices) for a domain name such as www.company-name.co.uk, space on a commercial web server, and the creation and maintenance of a simple site by an external design company. There are many ways in which a business can use the web (Gascoyne, 1997; Bento and Bento, 1998) but this paper focuses upon web sites designed to promote the company, its products or services. There are, however, many common

types of suitable financial engagement from a simple web presence with no product information to an electronic commerce solution that sells products online (Koh and Balthazard, 1997; Cockburn and Wilson, 1996). Not all of the five levels shown in the table would be appropriate for every business; for example electronic commerce presents its own set of issues (Nath *et al*. 1998). Those not supplying multiple copies of a uniform product or service may well only be able to use the first type of site. Beyond a basic site, the company is obligated to keep the information up-to-date. It is now possible to accept secure payments online through a third party site, avoiding the complex and costly process of setting up the software. Some merchants will not even charge a set up cost, but will levy commission on sales instead, making this an ideal starting solution for small businesses unsure of the demand for their products on the Internet. This allows them to jump straight to the fifth level of engagement for little more set-up cost than the fourth.

Table 2. Levels of Financial Engagement

Type of presence	Site content and examples
1. Company information	General details about the business including contact information: (postal) address, email and telephone number. http://www.bof.co.uk describes the nature of Bridgend Office Furniture business.
2. Product information	All of the above, plus specific details of available products. http://www.dat.co.uk describes all of the training courses that Digital Automation Training provide.
3. Online catalogue	All of the above, plus pricing information. http://www.hwm.co.uk gives a price list of the current stock of Aston Martins at HWM.
4. Online mail order catalogue	All of the above, plus the ability to buy by mail order. http://www.sandpiper.co.uk sells books and does not have a secure online order form, but gives a fax number and postal address.
5. Cyberstore	All of the above, plus the ability to accept payment online through an automated process http://www.blackstar.co.uk/ is a site where you can choose a book or video and pay for it with a credit card online.

An alternative dimension for assessing web sites is entertainment value. This would not be appropriate for most SMEs and so it will be discussed only briefly here. Many large companies in certain industry sectors such as jeans manufacturing have web sites with no financial engagement, but which are designed to promote brand image through the use of online entertainment. This could come in the form of computer games designed in an Internet-portable programming language such as Macromedia Shockwave, or in support for virtual communities perhaps through chat channels. Creating an attractive interactive site of this kind will take more development time and cost more, perhaps an extra £1,000 to £5,000 for the development of significant new site tools. This may be prohibitively expensive for small businesses that are not reliant upon image or confident enough of reaching their market through the Internet.

Web site quality

An SME that creates or buys in a web site needs to be able to judge the quality of the product. Web site design comes at a variety of prices, from under £100 for an enthusiastic amateur trying to get in to the market to tens of thousands of pounds from a well-known specialist design company. It can be difficult for the business to assess the quality of the product created for them because some of the mistakes, such as browser incompatibility and effectiveness in search engines, are subtle and because the technology can obscure the real potential that may be there to be tapped.

The quality of a web site at any of the above levels must be evaluated with a number of different criteria.

- Site visibility in search engines
- Ease of use
- Design quality
- Ease of site maintenance and updating

These are discussed in the subsections below except for the last, which is the subject of the next section. In all of these areas there are some general rules as well as issues that are contingent on the type of business concerned and the chosen aim for the site.

Visibility

The issue of visibility is one that is easy for the inexperienced to ignore. An otherwise excellent web site may be completely ignored because few potential customers ever find it. A potential customer can arrive at a web site in three ways: by typing in its address; by following a link from another site; or by following a link from a search engine. If a company is using its web site as an important marketing device, then it needs to advertise the address in various places, certainly on its own literature and advertising literature but also perhaps by the use of Internet adverts placed on other sites such as search engine sites. For the majority of companies that are primarily using the site as part of the marketing strategy to attract new customers, it may not make sense to spend additional funds on promoting it. The main strategy must, therefore, be to attract genuinely new business through links from other sites, most importantly search engines, but this is not an obvious point for many companies starting out and often gets ignored, as the survey described below reveals. There are a number of design and other issues that need to be addressed in order to get the page registered with search engines. Some search engines such as Yahoo! have a large number of human site reviewers and the business needs to submit the address of the site in order to have it reviewed and registered so that it can be found in a search. Other search engines such as HotBot use automated programs known as ‘spiders’ to trawl the web and index pages.

An important issue with this type is the use of ‘frames’ based pages. These allow web pages to be split up into a number of separate rectangular areas in the browser window, each independent of the others. The problem is that only the starting page can be referenced correctly with an Internet link, pages deeper in the site have to be accessed indirectly via the starting page. The automated spider will often ignore frames-based sites beyond the home page, omitting them from its searchable database and significantly reducing the chances of users visiting it. Some spiders will index the site but will link to the individual frames, resulting in a partial display of the site, often with disastrous consequences, such as missing all the site links held in a different navigation frame and consequently being unable to access any of the rest of the pages. Frames should, therefore, not normally be used for the majority of sites hoping to attract casual visitors.

The exceptions are sites that do not want indexing by search engines because the content changes too rapidly or because they require a user to log in to have access to the contents. Visibility can also be increased by appropriate use of the indexing features built in to the computer language that codes web pages, HyperText Markup Language (HTML), specifically the 'meta' tags for keywords and description. These help the search engine to index the pages. Visibility can further be increased by a number of other methods, including joining a links exchange, where a number of related sites agree to carry links to each other's sites. Software can also be bought or a company employed to help submit or promote the web site to as many search engines as possible. Online and traditional advertising can also be used for important sites (Aldridge, 1997).

Ease of use

Ease of use, or *usability*, is an important issue for a web site, as it is for any piece of software: how easy is it for the user to use the website for the purpose that the owner would like them to? This comprises four main categories.

- Accessibility
- Navigation
- Readability
- Download speed

Accessibility, the most basic concern, is whether the site works at all: not the obvious point that it may seem. There are many different versions of HTML that have been sanctioned by the official body, the World Wide Web Consortium, including even three 'flavours' of version 4 in 1998 (Raggett and Jacobs, 1999). Each new version has additional capabilities which means that sites designed using them will not function correctly in older browsers. The situation is exacerbated by the fact that both Netscape and Microsoft have included their own unofficial extensions in browser releases and is further complicated by the introduction of a formal mechanism for extending the functionality of HTML (Bray and Sperberg-McQueen, 1997). The question to ask about a site is, therefore, in which browsers is it fully functional, in which does it function adequately and in which is it unacceptable? Unless a company is making a statement about its mastery of new technology, the last class should represent a very low percentage of the browsers in use. A related issue is the use of embedded supporting applications such as Java applets (Gosling *et al.*, 1996) or other specialist software for special effects. Apart from Java, which is automatically included in modern browsers and can be useful (Tyma, 1998), making technology central to a web site means that many users will have to download the application and install in on their computer, but those unwilling to do so may leave the site as a result. It is, therefore, better to avoid employing supporting applications unless they enhance the business goals of the site enough to offset the effect of lost users.

A factor that is related to both usability and visibility is *download time.* When a site is viewed over the Internet users may surf elsewhere if it takes too long to appear on their screen. An important property of a web page is, therefore, the time that it takes to download, but this is partially dependent on factors beyond the control of the site designer. Two relevant factors are the amount of traffic on the Internet when it is being viewed and the speed of the slowest link between the user's computer and the hosting web server, often the user's modem speed. The download time is not fixed for any web site, although it can be estimated for typical user profiles. The most important speed-related factor that is under the control of the designer is the total size of all the files that make up each page. This will be the HTML file size plus the sizes of all image files used, and any helper application file sizes. The site should be

designed so that typical users will not normally have to put up with excessive waiting times. In a situation of low overall network traffic, a user with the fastest current (1999) common modem, V90 or 56K, may be able to approach speeds of 5k per second for page downloads. Dividing the total size of the page, its images and other embedded resources by 5 therefore gives a normal minimum download time for a site. At busy times of day, such as early evenings and weekends, actual download times are likely to be several times this. Although it is known that faster download times improve users' perceptions of the quality of a site (Ramsay *et al.* 1998) it is not possible to give a definitive maximum acceptable download time. To evaluate a site, it is best to download it with the same type of modem as expected visitors and at the same time of day, perhaps working day for business clients and evening for others. The purpose of this evaluation, which should be conducted several times on different computers if possible, is to judge whether the download time is short enough to avoid loosing customers to competing sites. As an example of an unacceptable design, one vehicle hire firm has a web site with a home page total size of 250k. This site would take 50 seconds to download under ideal network conditions, but at least several minutes at busy times. A businesses such as a small graphic design company may, however, feel that their image demands a high quality graphics intensive site and may, therefore, be prepared to accept slow download times.

A very important aspect of usability is *navigation*, which is well documented in the discipline of Human Computer Interaction (HCI), see for example Preece (1994). A site needs to be easy to navigate (Nel *et al.* 1999). For a web site the user should be easily able to see what is available on the whole site from the main page (Furnas, 1997). This means having clear links to the main areas of the site and the careful choice of words and images to convey the message of what the site is about. The user should need to follow as few links as possible to get to the information and it is better to have pages with a lot of well organised links than a deeper structure of pages with groups of links (Shneiderman, 1998). The links should be logical and consistent enough to avoid causing disorientation, often a real problem for larger web sites. Part of the usability of the navigation system is also in the consistency of the interface in having a common design for all links. Some web sites will, by their nature, be used infrequently by their visitors. It is therefore important that it is clear from the main page of a site what is available and how to get to the various parts. In this context, studies have shown that site maps, pages that are overviews of web sites, are very popular with visitors and can speed navigation (McDonald & Stevenson, 1998).

The text on a web site also needs to be *readable*. Many sites commit basic errors such as having text on a patterned background or background colour that does not contrast sufficiently. Especially if there is a lot of text to be read or scanned through, effort should be put in to making it easy to read. This normally means having black text on a plain, white or off-white background (Siegel, 1997).

Design quality

A further important measure of the quality of a web site is its design, the ‘look and feel’ of the site (Day, 1997; Waters, 1996). Web site design shares many features in common with print media, and many of its techniques transfer, but all too often even the basic rules of graphic design are forgotten. The design should be appropriate to the goal of the site, avoid ‘bad practice’ and be memorable. Styles and quality standards change over time and so, as is the case for any artistic medium, there is no fixed recipe for quality, but the list of poor style elements increases annually. This includes flashing text, poor quality images, uncoordinated colours, unnecessary

moving images (known as animated gifs), under construction placeholders and grey backgrounds (Siegel, 1997; Dix *et al*. 1998). Despite these faults having been well known for a number of years, they can still be seen on the sites of many corporate web site development companies. Poor design will not necessarily directly lose a business customers, but it represents a lost opportunity to enhance the company image.

Maintaining a Web site

A company opting for a web site containing at least some product information needs to resolve the issue of how to keep it up to date. This is particularly important if the site contains product pricing information. If an external contractor created the site then it could be costly and inconvenient to ask for frequent updates. A better solution is to have the site created in such a way that company employees can update it themselves. There are various ways in which this can be done. Uploading a page to the web server is not a costly or complex operation, just requiring a computer with a modem, standard Internet connection software and a file transfer program implementing the File Transfer Protocol (FTP). FTP programs are available free of charge and Internet connection software comes with the standard operating system of most computers sold. The process for updating the site depends on how the information is embedded in it.

If the information is written into the source HTML of the page then a web editor could be used by a word processor user to update it. The updated page would then need to be transferred to the server with their FTP program.

If there is a lot of product information then a methodology that employs the company product database or spreadsheet would be needed. This could involve exporting the data to a web page or linking the database to the site. The Microsoft Office 97 and 2000 suites allow data to be exported to web pages (Microsoft, 1999), as do other spreadsheets and databases. A possible solution is, therefore, to use the software's native export to HTML feature. A drawback with the Office 97 generation of software is that the pages produced can be very plain and will not fit in with the rest of the web site's pages. Some later software, including Office 2000, improves on this and allows greater incorporation of design elements into the exported page, but this may still not be able to integrate seamlessly with the site. This software can be set up to be easy to use by inexperienced users, but the complex nature of the connected components used means that expert support may be needed for troubleshooting. A more fundamental problem is that for large quantities of data the site needs to be searchable, rather than displaying all the products at once. This means using another technology to link the database or spreadsheet to the web page. It is possible to link many kinds of databases to web pages, but depends on the type of server that is hosing the pages, and whether it is able to host the database. The database link solution would be more expensive to set up than the others but would be easy to maintain by uploading database updates with FTP.

The Survey

A survey was conducted of UK business web sites to investigate the key issue of visibility. A random sample of UK business sites to test for examples of bad practice was needed. Previous surveys of web sites have focussed on larger companies (Turau, 1998) or have used search engines to find the sites for their survey. These methods would have been counterproductive because the whole point of the survey was to discover sites that were not properly linked to search engines.

The survey method

Instead of searching for the businesses through a search engine, in this survey they were sought through a domain name search. When a UK business sets up a web site, it can choose a domain name of the form www.anything.co.uk or www.anything.plc.uk or www.anything.com, where 'anything' can be any combination of up to 22 legal characters (letters and a few other characters such as the minus sign) which has not already been taken. It is usually the company name, or an abbreviated form of the name, although a trademark is sometimes also used. The .co.uk domain is the default domain for UK businesses, and so is the logical place to look for a random sample because.plc.uk is very small and .com is international, but mainly American and Canadian. It is possible to test a domain name, such as www.a.co.uk by entering it in a web browser and seeing whether a web page will be returned or an error message such as the following.

> Netscape is unable to locate the server www.a.co.uk
>
> Please check the server name and try again.

One method of finding UK business web sites at random is, therefore, to type www.anything.co.uk addresses at random, ignoring those that produce the above error message. This was the chosen method for the survey. All business sites in the UK business domain co.uk were surveyed, but restricted to the 17,576 sites with only three letters in the second part of their domain name, starting with www.aaa.co.uk and www.aab.co.uk, continuing through all other combinations of three letters until ending with www.zzz.co.uk. The choice of web sites with three letters in the main part of the domain name was made because it was known that there this is a common choice of name length and because, although it is an impractical number to process by hand, it is a realistic number to automate.

This was not a completely satisfactory solution to the problem because of a number of problems.

- A small minority of sites with UK names are not UK based companies
- Some real sites are in fact 'holding pages' for a domain name or site under development or server test pages
- The method of selection is not completely random, it is dependant on the length of domain name chosen
- Some UK companies are using other domains such as .com.

The first two problems were resolved by a follow-up human check of the names of the sites found to eliminate unwanted addresses. The last two problems were impractical to resolve. The restriction to three letters was taken for practical purposes. A random search of the entire possible address space would have been impractical due to the size of the full address space, which has far in excess of 10^{30} possible addresses. A similar sized search of a random sample of this would have, with a very high probability, yielded no real sites at all. The effect of this arbitrary restriction to sites of companies that happened to have chosen a three letter second part of the domain name is believed to be likely to have only a small biasing influence on the sample chosen. There may be a possible bias towards more companies with more experience of the Internet, if shorter domain names were more popular in the early days, and if companies trying to join later found that the short domain name that they wanted was already taken. The effect of omitting companies in the .com domain may well be to bias the sample away from the largest companies, that perhaps desired an

international name. These companies may well, however, have duplicate .co.uk and .com names, as is not uncommon.

The sample is considered to be quite representative of UK business as a whole. It is not a genuine random sample, but it is believed to be the most random method yet tried for obtaining a large sample of UK business web sites.

In the nature of the survey, the size of businesses was not taken into account. In order to discover information on the size of businesses, a number of the sites successfully downloaded were investigated further to find the size of the owning company. Few sites gave this information directly, but for a small number the approximate number was clear from the context, for example one site was a single small newsagent, whereas another was a group with over 500 subsidiary companies. To gain information on more sites, over a hundred were also sent an email requesting the company size. Through these methods we were able to determine the size of 76 companies. Of these 78% had 0-50 employees, 82% had 0-100 and 90% had 0-500. From this it is clear that the majority of the companies surveyed were small businesses. There was not a statistically significant difference between the results for these categories and the overall results discussed in the following section. It is believed that this is the largest survey of UK business web sites conducted so far, and that it is also unusual in its focus on smaller businesses, and method for capturing sites irrespective of search engine registration.

The survey results

A program was constructed to automatically test the existence of and download the sites chosen, extracting basic information from them. The results are shown in table 3. The search was executed automatically but was followed with a manual check to remove sites that were not genuine home pages. The difference between the number of sites tested and the number existing in table 3 below is partly explained by this, but is mainly due to the majority of domain names of the form chosen being as yet unused.

Table 3: Properties of UK business sites

Sites tested	Sites existing	Using frames	Use of Keywords
17576	3641	866 (24%)	1733 (48%)

This table shows widespread bad practice, with 24% using frames and 52% not using keywords to help index the site. As discussed earlier these will result in a site which is not indexed efficiently by search engines. These statistics relate to the home page of the business.

A follow-up survey was also carried out for the 3641 sites that successfully downloaded to see how many were registered with search engines. The search engine, Yahoo! was chosen for the test because it is the dominant search site with by far the biggest number of users (43.6%), with AltaVista in second place (10.5%) (websidestory, 1999). Yahoo! is a directory type of search engine where sites need to be submitted and rated by human reviewers before they are indexed, but any searches that do not match a directory entry are automatically passed on to an automated search engine. A program was written to automatically test the sites found to see if they were either in the directory structure or in the backup database. Sites not in either of these would never be found through a Yahoo! search. Table 4 summarises the results.

Table 4: Search Engine Results for UK Business Sites

Yahoo!	No frames and in Yahoo!
1642 (45%)	1228 (34%)

The results here show that over half of the sites did not appear at all in the search engine. The survey was followed up by selecting a number of the sites not registered in either search engine and testing them manually in a number of meta search engines, sites that index a collection of other search engines. This search included the company name and checked whether the site was registered in the list of hits. In most cases at least one search engine had registered the site, usually AltaVista, but in a minority of cases the site could not be found in any search engine. Thus most, but not all, UK business sites are registered in at least one major search engine, but that at least half are missing from one or more of the major ones, with serious implications for the ability of potential customers to find them.

Conclusion

There is a large online population in the UK, probably over ten million have used the web, and many are prepared to use it to at least influence their purchasing decisions. It is, therefore, apparent that businesses of all sizes should consider having a web site. There are many types of web site, but a small business can buy a basic web site to advertise themselves for not more than £1000. There is, thus, an opportunity to benefit from the potential of the web that thousands of UK businesses are attempting to take advantage of.

The survey, of predominantly small businesses, shows that many will be missing opportunities on the web. A web presence for a company should mean that potential clients using the web to search for a product or service that they provide will see their site appear whichever search engine they use. If there are a lot of competitors on the web then the company would of course like their name to appear at the top of the list. The reality is rather different. Some companies seem to be completely invisible on the Internet making their site as effective as putting up a poster at the bottom of the sea. At least half are going to miss potential customers that are using the 'wrong' search engine, and a quarter have sites that are not effectively indexed because of the use of frames. Most businesses that are based on the web will be fully aware of these factors and pay attention to ensuring that their site is registered with search engines, and indeed that they appear near the top of relevant search lists. This is a particular issue for companies using the web as an additional marketing strategy without fully understanding the implications.

Small businesses without access to significant IT skills may be particularly vulnerable to accepting the web site that they have been given, due to a lack of general knowledge about the Internet. Technical skills are not necessary to understand a basic site, however, and they need to evaluate their web site and take control of its content and purpose. First and foremost the site needs to be designed to meet specific business goals, such as to attract new customers, and therefore, the content of the site must match the business needs, a point that needs stressing for wider applications of Internet technology (Thompson *et al*., 1998). Its execution must be carried out by a person or team with some technical knowledge or support, but the technology should not drive the site. It is the responsibility of the business to ensure that the site content and design meets their goals, but in the current climate they also need to monitor the technical quality of the site. In order to facilitate this a checklist has been included as

an appendix, partially drawn from a summary of Neild (1996), to form a starting point for a small business to evaluate their site. Unfortunately, a small business cannot rely on web site design company to deliver an effective site for their needs. From a search engine visibility point of view, one of the worst sites in the survey was the home page of a small web design company which contained only one word that a search engine could use to index the site, "shockwave", the name of the technology that they were using. This site, even if registered with search engines, would therefore not be found by users looking for web site designers. If a company is considering designing its own web pages, the availability of cheap and high quality web editors means that they do not have to be designed by the IT specialist. A more appropriate person may be an IT-literate employee with a marketing background, perhaps with some technical support.

Once a web site has been designed which is able to attract customers then a company will be in a position to make a realistic assessment of the potential of the Internet for their business.

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Appendix

Basic Web Site Checklist

Issue	Yes	No	If 'No' explain why
Visibility			
Is the site indexed in all the main search engines?			
Does it avoid all use of frames?			
Do the main pages use Description and Keywords Meta tags?			
Does the site work well in all major browsers and at all common screen sizes?			
Design			
Does it use a small number of matching colours, consistent across the site?			
Does it avoid poor design elements such low quality images, animated images and flashing text?			
Is the look and feel of the site appropriate and high quality?			
Usability			
Can the site contents be deduced from the main page?			
Is navigation consistent and quick?			
Is the download time not too long to alienate a typical user?			
Business			
Does the site contain company address, phone, email and fax?			
Does the site contain product and pricing information? (if desired by company)			
Can the user buy online? (if desired by company)			